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# SCIENCE NEWS LETTER

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THE WEEKLY SUMMARY OF CURRENT SCIENCE •



June 5, 1937

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A SCIENCE SERVICE PUBLICATION

## SCIENCE NEWS LETTER

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## Current Science

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## DO YOU KNOW?

Fishermen of ancient Rome used artificial flies.

Siamese fighting fish sometimes duel for a whole day and night, according to Siamese observers.

Canada's part in developing aviation is illustrated in a new aeronautical museum, established at Ottawa.

To fight bark beetles, scientists have tried injecting into the sap stream of an infested tree chemicals that will poison the insects.

PWA workers have constructed or improved 922 hospital buildings since June 1933, adding 61,000 new beds to the capacity of hospitals.

For 101 years the Hawaiian volcano Mauna Loa has averaged one crater outbreak every three and a third years, and one flank lava flow every six years.

Experiments have been tried with a wireless communication system inside coal mines, for giving orders and getting information from distant parts of the mine.

The first photograph of the moon was a daguerreotype, made in 1840.

The greatest giant stars are about 400 times as big as the sun.

Many farmers use old automobile engines to run pumps for irrigating farm land.

Dwarf pear trees are produced by working the desired pear variety on quince root stocks.

In several thousand years of domestication, the silkworm in its moth stage has lost use of its wings.

Helium, non-explosive gas, will lift 92 per cent. as much weight as the dangerous hydrogen gas in dirigibles.

The last known native Pennsylvania elk was killed in 1867, and restocking experiments, begun in 1912, seem doomed to failure.

Seven new helpful kinds of parasites, imported from South Africa, are being tried out as destroyers of the black scale pest of California citrus groves.

## WITH THE SCIENCES THIS WEEK

Most articles are based on communications to Science Service or papers before meetings, but where published sources are used they are referred to in the article.

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What discovery may make it possible to give free glasses to all school children needing them? p. 365.

## POPULATION

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## RADIO

Does the noise on your radio come from interstellar space? p. 360.

## GENERAL SCIENCE

# Finds Dry Summers Influence Fish and Animal Abundance

**Birds Eat Young Fish When Streams Are Low and Clear; Royal Society Hears of Living Fossil That Heat Kills**

**S**CARCITY of salmon in the Atlantic is probable this year and the next, Dr. A. G. Huntsman of Canada's Biological Board told the Royal Society of Canada at its annual meeting at the University of Toronto.

Dryness and wetness of the summers is linked by Dr. Huntsman to the abundance and scarcity of not only salmon but other forms of wild life as well. There is a periodic recurrence of scarcity every 9.6 years shown in the records of both animals and fish, but until Dr. Huntsman's researches its cause has been a mystery.

Studying salmon statistics Dr. Huntsman came to the conclusion in 1931 that the unknown influence which caused these fish to be scarce every 9 or 10 years must have been acting upon them while they were still small and living in their rivers before going to the sea. The reason for this conclusion was the fact that, in localities where the salmon were the fewest years in the sea before being caught, the scarcity came correspondingly earlier, and where the salmon were longest in the sea, there the scarcity came last.

Dr. Huntsman has now found from other records of the past what the previously unknown influence must be. It proves to be one that can act also on the fur-bearing animals of the Northwest.

## Food for Birds

On that well-known salmon river in Cape Breton, the Margaree, the young salmon were found to be the chief food of the fish-eating birds, kingfishers and mergansers, when rearing their young along the river during the summer. In rainy weather, with the river high and murky, the young salmon are comparatively safe, but in dry summers, with the water low and clear, the birds can remove them very thoroughly.

Dry summers should thus be followed by a scarcity of salmon as many years later as the salmon remain in the sea before being caught. If dry summers were

responsible for the periodic scarcity of salmon on the average every 9.6 years, they would have to occur the proper number of years before each periodic scarcity.

The last one of these for the Margaree was worst in 1928 and the daily records of river height showed that the summers from 1923 to 1925 were dry as would be expected from the theory. Records of rainfall, if numerous enough, would give proof of dryness of the summers. Such as are available do show comparative dryness in the proper years, even back to the seventies of the last century, to explain the most pronounced scarcity of salmon that has been recorded, that centered in the year 1880.

## Wet Kills Animals

There are indications that the wet summers that alternate with the dry ones are likely to be the cause of the periodic scarcity of the animals of the interior of the continent, such as rabbits and grouse,

by making them more liable to disease. Dr. Huntsman now intends to see whether predictions can safely be made of the abundance or scarcity of all these animals through precise (Turn to Next Page)

## ASTRONOMY

## Rotating-Dome Observatory Built Entirely by Students

**A** COMPLETE astronomical observatory with telescope and rotating dome housing has been constructed by students of the Edgewood School, Greenwich, Conn.

Beneath the copper rotating dome that weighs nearly a ton is a concrete foundation, cinder block walls and an eight-inch reflecting Newtonian type telescope. All work on the entire observatory, including the removal of boulders weighing three tons each, was accomplished by the students. The only outside help was in the fabrication of the floor.

Stanley Reynolds, now a student at the University of Chicago, ground the mirrors of the telescope and designed the observatory. Alan Tucker built the copper dome. The project was directed by John L. Wallace, head of the shop.

Dr. Harlan T. Stetson, astronomer of Massachusetts Institute of Technology and former director of Perkins Observatory, and Dr. Orestes H. Caldwell, president of the Amateur Astronomers Association, spoke at the dedication.

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## PUTTING UP THE DOME

*The boys of Edgewood School have constructed their own astronomical observatory containing a telescope of their own manufacture.*



knowledge of the dryness or wetness of the summers.

When salmon are scarce along the Atlantic coast all sorts of theories are advanced to explain it, such as poaching, drift-netting, general over-fishing, failure to breed from the right fish, winds from the wrong quarter, some cataclysm in the ocean.

The scarcity is a matter of deep concern to many fishermen who depend to a greater or less extent upon catching and selling salmon as a source of livelihood, to many guides and hotels catering to the salmon anglers, and to the anglers themselves, who in New Brunswick alone pay the Provincial Government more than \$80,000 a year merely for the angling rights on certain rivers.

The Hudson's Bay Company has kept records of the furs it has taken from the Northwest for more than a hundred years and these show that such animals as the rabbit, the lynx, the marten, the fox and others, have been scarce on the average every 9.6 years. So is it with the partridge or ruffed grouse, in Ontario. Statistics of Canada's fisheries, which have been collected since Confederation, show that also the salmon of the Maritime provinces have been more or less scarce on the average every 9.6 years.

### Twin Fingerprints

So alike are the finger and palm prints of so-called "identical" twins that Dr. John W. MacArthur, University of Toronto geneticist, told the Royal Society of Canada that this type of twinning can be correctly diagnosed 4 times out of 5 from finger and palm prints alone without comparing faces. Left and right hands of the same person average about 27 per cent. unlike in twins as well as single born, using a new method devised by Prof. MacArthur. Matching left hand with left and right with right, pairs of identical twins differ by only 19 per cent. in their patterns, lines and ridges. Ordinary brothers and sisters and fraternal twins differ by 38 per cent.

### Only Thunderheads Electrified

Only thunderheads, technically known as clouds of the cumulonimbus type, contain localized electric charges, Dr. D. C. Rose of the Canadian National Research Council told the meeting. Airplane flights among the clouds, during which delicate potential gradient and conductivity measurements were made, furnished this proof of the non-electrical character of ordinary clouds.

### Living Fossil Hates Heat

A "living fossil" insect that thrives at a temperature a few degrees above freezing and is overcome with the heat in the palm of a human hand was described by Dr. E. M. Walker, professor of biology of the University of Toronto, in his presidential address to the biological section. This primitive creature, which evolution has passed by, is found at heights of over a mile in Canadian Rocky Mountains among moss, decaying logs and rocks near glacial bogs.

A slender, light amber-colored, wingless insect,  $\frac{3}{4}$  inch when full grown, its name is *Grylloblatta*, after *Gryllus*, the cricket, and *Blatta*, the cockroach. It is a link between these two common groups of insects.

So slow are its life processes in its cold surroundings that instead of taking a few weeks to develop and a year to pass through a life cycle, as do most insects, its growth from egg to adult requires about five years and the period from one generation to another is no less than seven years.

To carry some of these insects to Toronto it was necessary to pack them in ice-cooled containers.

### Poison Weeds

There is a chance that practical weed control under field conditions may be achieved by use of relatively small doses of plant poison, it was reported to the Royal Society of Canada by Dr. W. H. Cook of the Canadian National Research Council. Unwanted plants are often reduced to half their usual size by a chemical dose only one-tenth that required to kill them.

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### POPULATION

## Japan Will Double Numbers While Europeans Decrease

**P**RESENT-DAY struggles of single European nations to stamp their own culture on the world seem peculiarly futile and pathetic when viewed in the light of certain figures now published for the first time in an American publication by Princeton University and the Population Association of America.

Will the world of future years be one peopled by the nations of the East?

This is the question that can be read between the lines of those marshalled rows of figures in the Population Index. Japan, although losing a grievous number of infants in extremely high infant mortality, is growing at a rate so

high that it is not comparable with that of either the Northern European nations or North America.

Although the girl child is not so important as her brother in some civilizations, she is the one who counts most in the calculations of the vital statistician. It is the number of daughters born to the women of proper age for motherhood that eventually determines (along with death rates) how many of their kind shall walk the earth. So figures of total population increase or decrease do not interest statisticians so much as those more significant ones showing how many daughters may be expected to be born and grow to child-bearing age for each woman now living and at a reproductive age.

In the United States, births of daughters are not numerous enough to insure replacement of one generation by the next. In Japan, the reproduction rate is high enough to double the population in each succeeding generation. France, in the depression year 1933, lacked 18 per cent. of enough births to insure replacement. England lacked 27 per cent., Germany 30 per cent. and Austria 33 per cent.

The hand that rocks the cradle appears to be working out a new destiny for the future of the world.

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### WEALTH OF THE ANCIENTS

This necklace on which are strung beads some of which are of gold was an adornment worn in the Stone Age.



AT OLDEST CITY

In new low depths at Tepe Gawra has been found the oldest known closed pottery kiln with which the mysterious glaze of the Tepe Gawraian pottery is believed to have been achieved.

## ARCHAEOLOGY

## Strike 'Gold,' Music, Art In the World's Oldest City

**Primitive Stone Age People Wore Golden Necklaces, Built Architectural Gems, Fired Painted Pottery**

**T**EPE GAWRA, the world's oldest city, is proving one of the most fascinating places on earth.

From its depths this season, archaeologists have extracted news about civilization that amazes and thrills them. Discoveries reveal that earlier than anybody supposed, between 4500 and 4000 B. C., men and women were enjoying art and music, decking themselves out in gold jewelry, building temples worthy of being called architectural gems. They had what you might call culture, back in that mysterious time, even though they didn't know how to read and write and hadn't discovered how to melt up copper for good metal tools. They were Stone Age folk and illiterate, if you like, but they lived in a great age.

Americans may well take special interest in revelations from this city of the Tigris River Valley in old Mesopotamia, for it is being excavated down through its 22 layers of ruins by a joint expedition of the University Museum, University of Pennsylvania, and the American Schools of Oriental Research. Dr. E. A. Speiser, professor of Semitics of the University of Pennsylvania, is directing the expedition.

Digging into the twelfth to sixteenth levels of the city this season, Dr. Speiser expected to find himself among ruins of more and more primitive people, in the heart of the fifth millennium B. C. He was amazed to find what they knew.

Discoveries include:

1. Thousands of beads, including lapis

lazuli, and the oldest gold beads of known age. No worked gold of such known antiquity has been found before.

2. The earliest example of landscape painting ever found. This is on a large vase, shattered, but reconstructed by the archaeologists. Two panels on the vase show the great Tigris and Euphrates Rivers with hunters stalking wild beasts along the streams.

3. The oldest temples in group form known. These are architectural gems, and would be remarkable if built thousands of years later, Dr. Speiser declares. They include such architectural devices as piers and pilasters, typical of the Middle Ages.

4. The secret of how Tepe Gawra's interesting painted pottery was fired. This is revealed by a building with round shafts seven feet deep leading to a series of underground chambers. These chambers were closed kilns, and the shaft permitted indirect firing with perfectly controlled temperature. This is the oldest known example of a closed pottery kiln.

5. A figurine of a mother goddess, from the sixteenth level. This shows the sort of deity worshipped when man was emerging into civilization.

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## ENGINEERING

## Hints for Hot Weather Comfort in the Home

**W**ITH summer less than a month away and hot weather imminent throughout a great part of the nation perspiring people are already thinking of ways to keep cool. In restaurants, motion picture theaters and a few office buildings you can get touches of air conditioning. But the great mass of the people who have not yet reached the higher salary brackets have little hope, just yet, of cooling their hot homes in summer in this fashion.

Yet in the great bulk of the country, and except for short, especially hot periods of the summer, a few sensible hints from the research laboratories of the University of Illinois can stay much discomfort.

The University has a special heating and cooling research home which is disclosing much knowledge of value in human comfort. Its construction is merely that of a well-built house such as many people can afford.

Here are the Illinois hints that you might try this summer.

Keep open as many windows as possible from 6 p. m. to 6 a. m. and keep



#### STONE AGE DEITY

*A figurine of the "mother goddess" worshipped when man was only just emerging into civilization.*

as many windows closed, as possible, during the other hours of the day.

In other words, let the cooler night air work for you during the hot daytime. Moreover, keep the attic door open during the night and the windows in the attic open so that the natural chimney thus created will help suck up the hot air in the lower levels of the house.

Have awnings on the windows on the three sunny sides of your house for extra comfort. If you actually had an air conditioning system in your home you would find that awnings so used would reduce the cooling load on the equipment by 20 or 30 percent.

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#### NUTRITION

### Vitamin B Prevents Hair From Graying—In Rats

ONE more compelling, if unimportant, reason for eating plenty of vitamin B is that it may keep your hair from turning gray. This appears to be one implication of research reported by Drs. Agnes Fay Morgan, Bessie B. Cook and Helen G. Davison, of the University of California, at the meeting of the American Institute of Nutrition. The implication is not made by the scientists, who content themselves with reporting

observations of graying hair in rats deprived of one part of vitamin B.

Vitamin B is extremely complex. It has been split up into six or more vitamins, each with slightly different effects on the body. One of these protects against the severe nervous disease, beriberi. Another protects against the hard-times disease, pellagra. This part of the vitamin B complex, as it is now known, has been split again, one part of it protecting against the skin inflammation of pellagra.

A vitamin B preparation made from rice bran filtrate is concerned with graying of hair, at least for rats. Rats which did not get this "filtrate factor", as it is called, turned gray. Adequate doses of the filtrate factor prevented or cured the condition.

This filtrate factor is found in cornstarch, which is surprising because corn is supposed to be one of the causes of pellagra, Dr. Morgan points out, since it is found in the diets of most pellagra patients. The filtrate factor, however, is

not only found in cornstarch but has been thought to be the pellagra-preventing part of the vitamin and the same preparation has actually cured pellagra.

This filtrate factor, whatever its function will prove to be, cannot apparently be formed in the body but must be supplied in the diet. Two closely related vitamin B factors, however, can be formed in the rat's body when lactose or milk sugar forms a considerable part of the animal's diet.

#### Females Use Iron

Female rats make better use of iron in the diet than males, it appears from research reported at the same meeting by Dr. Mary S. Rose and Helen J. Hubbel of Teachers College, Columbia University. Rats made anemic by milk feeding were fed milk plus iron and copper until the hemoglobin content of their blood reached a certain level. Analysis at this point showed that the females had larger amounts of iron in their bodies than the males.

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#### PHYSICS

## Transmutation of Elements Changes Chlorine Into Argon

A NEW transmutation of the elements in which the chlorine atoms in common table salt are changed first to potassium and then into the inert gas argon is reported by Princeton University scientists. The transmutation is one of the first achieved with the new cyclotron apparatus now in operation after a year's construction period. Ionized helium atoms are the bombarding source of energy which brings about the elemental change.

Prof. Henry D. Smyth, chairman of the physics department at Princeton, made announcement of the work by the four-man research team of Dr. Milton G. White, Drs. Malcolm C. and William J. Henderson and Dr. Louis N. Rideour.

The form of potassium created, indicated Prof. Smyth, lacks one neutron and exists for a brief interval. Its average life is 10.8 minutes.

A feature of the Princeton cyclotron is that it employs the heavy, electrically-charged helium atoms as bullets to bombard the element chosen as target.

Helium gas of the same kind which is used in inflating airships in the United

States is passed into a special vacuum chamber where it collides with a strong electron beam. In the collision the helium atoms lose their outer electrons and become helium ions.

These helium ions, known as alpha particles, are inserted into the intense magnetic field of the cyclotron at its center and go round and round in ever-widening circles for 100 revolutions. At each trip they are accelerated faster and faster by an electric field until they attain velocities of about 15,000 miles a second (about 1/10 the speed of light) just before they are shot at a target.

Bombarding atoms involves considerable chance for about 1,000,000 helium bullets must be driven at a chlorine atom before one hit is made.

The new form of potassium, created as an intermediate step in the chlorine-argon transmutation, is an isotope of natural potassium. In passing over by spontaneous disintegration into argon it liberates energy equivalent to 3,000,000 electron volts in the form of fast-moving positrons.

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## MEDICINE

# Treat Ulcers by Continuous Drip of Milk Into Stomach

## Kidney Extract That Reduces Blood Pressure in One Type of Disease, Auto-Transfusion, Also Reported

A CONTINUOUS feeding of milk, drop by drop, into the patient's stomach is the new method of treating stomach ulcers reported by Dr. Asher Winkelstein of New York to the Medical Society of the State of New York meeting at Rochester.

Frequent feeding of small amounts of milk and cream has for years been part of the standard medical treatment of stomach ulcer. The milk together with alternating doses of alkaline powders, such as bicarbonate of soda, is given to neutralize the acid normally secreted by the stomach but which irritates the ulcer and prevents its healing.

Dr. Winkelstein's modification of this method into a constant feeding of milk, a drop at a time through a tube, is based on studies of stomach secretion especially at night.

The importance in connection with stomach ulcers of nervous over-secretion of acid by the stomach was emphasized by Dr. Winkelstein.

### Blood Pressure Reduced

A kidney extract which not only reduces the high blood pressure accompanying one kind of kidney disease but has saved lives of dying patients and restored the eyesight of others threatened with blindness was described by Dr. Benjamin Jablons of New York.

About half the patients treated showed a definite drop in blood pressure with definite improvement in general condition, Dr. Jablons reported. Kidney function and salt excretion were improved, dropsy disappeared, and the uncontrollable nausea and vomiting, headache and shortness of breath of chronic uremia were relieved.

### Auto-Transfusion

Blood sucked mechanically from the mother's body and injected back into her own veins has helped 38 women recover from childbearing that was dangerously complicated by development of the baby outside of the womb, Dr. Arthur J. Wallingford of Albany reported.

Dr. Wallingford hit upon the idea of this autotransfusion when he noticed, during the operation to save the patient's life, that large amounts of blood had escaped from the veins into the peritoneal cavity in these mothers, and that the women were in immediate need of more blood in their veins and arteries.

The advantages of using this blood in autotransfusion, which is performed before the patient leaves the operating room, are that there is no need for another donor and that the blood is immediately available when it is urgently needed.

## PALAEBOTANY

# Newly Discovered Plant Fossil Doubles Life of Land Plants

THE WORLD'S oldest land plant, estimated to be about 500,000,000 years old, or almost twice as old as previously discovered specimens, has been detected from its fossil remains by a Harvard scientist.

The primitive shoot, found in black oil shale from Sweden, is believed to have lived during the Cambrian era, a fact that substantially doubles the known age of higher plant forms on earth. Previous evidence has indicated that plant life first emerged from the water during the uppermost Silurian period or just under 300,000,000 years ago.

Investigators have for some time suspected that land plants probably existed during the earlier Cambrian period from a study of the fossils of animals of that era which must have depended to some extent on plants in their diet. This indirect evidence, however, has never previously been confirmed by discovery of the remains of the plants themselves.

William C. Darrah, instructor in botany and research curator of Harvard's Botanical Museum, identified the Cambrian plant, an accomplishment enabled

## Anesthetic Recommended

Vinyl ether, one of the new anesthetics, was "highly recommended" in cases of childbirth attended by the general practitioner and the less experienced anesthetist in a report by Dr. Wesley Bourne of Montreal, Can.

This anesthetic, Dr. Bourne said, is safe for mother and child, is easy to give, acts rapidly, can be readily controlled, and recovery from it takes place quickly and uneventfully.

Vinyl ether resulted from the pencil-and-paper calculations of a California scientist, Dr. Chauncey D. Leake, who figured that a compound which combined the structural characteristics of ethyl ether, the ordinary ether anesthetic, and ethylene, which had to be abandoned because of its danger, would be a good anesthetic.

For experienced obstetricians, Dr. Bourne recommended nitrous oxide for intermittent anesthesia during the early stages of labor followed by cyclopropane, another new anesthetic, in the last stages.

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by a new process in which a transparent cross-section only one twenty-five-thousandth of an inch thick can be peeled from a fossil for microscopic study.

Examined with the new peeling technique, however, the shale was found to contain minute plant spores, barely visible to the naked eye. Each is marked by a small three-pointed star or tetrad scar, a characteristic of early growth stages in higher plants but not found in the more primitive water plants.

Another characteristic of land plant spores was also detected, their wax coating which wards off water and decay. Because of this coating the spores have been preserved through the ages while the fleshy parts of the early plants have been crushed and destroyed.

The plant itself, Mr. Darrah believes, was probably a very simple green shoot, devoid of either leaves or flowers. It had only the bare essentials of land life. While considerably more primitive, it was in many respects similar to the *Rhynia* of the Silurian period, oldest previously known plant form.

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## ASTRONOMY

**Light of Reddish Star Comes From Its Depths**

**M**UCH of the light from the familiar giant red star Betelgeuse in the constellation of Orion comes from its depths, not its surface.

Dr. Walter S. Adams, director of the Carnegie Institution's Mt. Wilson Observatory in California, discovered new features of the star's spectrum photographed with a powerful spectrograph attached to the famous Mt. Wilson 100-inch telescope. Dark lines of the spectrum appeared to be doubled, due to a narrow bright line in the middle of those dark spaces caused by light absorption in the star's atmosphere. This reversal showed that much of the star's light came from great depths within it.

The density of the giant red star is only about a thousandth part that of air. This previously established fact is supported by the new researches.

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## CHEMISTRY

**Add Rare Jobs; Water Smeller for Cities**

**K**EEP an eye on the pages of your newspapers and an ear on those radio programs featuring interviews with people of odd occupations. Probably you will soon hear about the first official "water smeller" in the nation. Henry Laughlin of Tyrone, Pa., has just been appointed to that position by one of the chemical companies which makes activated carbon that serves so usefully in taking the odors out of the water supply of over a thousand cities and towns of the land.

Among Mr. Laughlin's accomplishments is the ability to turn on the faucet in a city and simply by smelling the water indicate its palatability. He is also claimed to have an odor "memory" which allows him to identify water from a city once he has smelled of it previously.

Although people seldom realize it, safe and palatable water can no longer be classed along with air as one of those "free" things in life. Processing America's water costs a billion dollars a year.

Water from a river, so often the source for an industrial inland city, has to have mud and other sediment removed by filtering, settling and precipitation. That it must be freed of harmful germs goes without saying. Moreover, the ultimate

users of the water are becoming more vociferous in their demands for the removal of odors and tastes that lower palatability. The days are rapidly diminishing when a city could simply mix chlorine with the water and make it safe, at least, no matter how it looked or tasted.

And that is where America's first "water smeller" comes in. His job is to advise cities and towns on the removal of odors from their water supply.

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## MEDICINE

**20th Century Needs vs. 10th Century Superstitions**

**M**ANY a man, who rides proudly in a stream-lined motor car might as well be jolting along in a two-wheeled mediaeval wagon, so far as his ideas of how to take care of his health are concerned.

Maybe he scorns the primitive man's witch doctor, but he still demands some mystery mixed with his medicine. Prescriptions written in Latin, for example, are sometimes valued more than simple word-of-mouth directions from the doctor. Even more general is the feeling that the doctor must give the patient some medicine. How many persons are satisfied to follow directions to stay in bed and await recovery without medicine? Only those with superior intelligence, in the opinion of Dr. Harry S. Mustard, director of the Eastern Health District in Baltimore.

A certain childlike readiness to be fooled may be an all right attitude toward amusements. It is dangerous and may even be disastrous when it comes to health.

One tragic consequence of this attitude of mind is illustrated by the case of a child who developed epileptic attacks following a blow on the head. A simple operation could have cured this child. Although the family was poor, neighbors raised enough money to send him with his father from their mountain home to the city where an outstanding brain surgeon was ready to give his services free.

On the train, the father was persuaded by a fellow traveller to abandon the operation and take the child to a special kind of doctor in the traveller's home town. By a system of rubbing and adjustments, it was claimed, this doctor could cure the lad. He was taken to this doctor and now is a chronic, helpless invalid.

*Science News Letter, June 5, 1937*

**IN SCIENCE**

## ENTOMOLOGY

**13-Year "Locusts" Are Now Swarming in South**

**I**F DURING the next few weeks you are motoring on the roads in states along the Lower Mississippi, don't be alarmed if you hear a sound like distant fire sirens, or see swarms of insects that look like triple-sized bumblebees. They are quite harmless thirteen-year cicadas, often mis-called locusts.

The area where the big bugs may be seen covers practically all of Missouri, Arkansas, and Mississippi, the northern half of Louisiana, southern Illinois and Indiana, and eastern Kentucky and Tennessee. The insects appear there every thirteen years. They appear in other parts of the South in other years.

The thirteen-year cicada differs from its seventeen-year cousin of the North only in the four-year difference between the long periods they spend underground before their brief emergence into the upper world to mate, lay their eggs, and die. They spend thirteen years underground and about a month above it. These two species are the longest-lived insects known.

The thirteen-year cicada is a close relative of the common harvest-fly or dog-day cicada. It is a big, thick-bodied, brown creature, with wide, transparent wings. Each forewing bears a W-shaped mark near its tip.

*Science News Letter, June 5, 1937*

## RADIO

**Noise From Interstellar Space Bars Short Waves**

**T**HE noise that originates in the interstellar spaces of the universe is generally the ultimate barrier to receiving signals on very short waves, K. G. Jansky of the Bell Telephone Laboratories told the meeting of the International Scientific Radio Union and the Institute of Radio Engineers. Some years ago Mr. Jansky discovered static coming out of the depths of the universe. In the absence of man-made interference the usable signal strength is usually limited by this astronomical interference.

*Science News Letter, June 5, 1937*



# THE FIELDS

## MEDICINE

### Chemical Cure for Gonorrhea Reported

**P**OSSIBILITY of conquering the second Hush-Hush Plague, gonorrhea, by a new chemical treatment appears in the report of Drs. John E. Dees and J. A. C. Colston, Johns Hopkins Hospital, Baltimore, to the American Medical Association in Chicago.

Sixteen out of nineteen patients were cured by treatment with sulfanilamide. In all but two of these recovery occurred within less than a week.

The treatment is still in the experimental stage, the Baltimore physicians point out, but they state that their results, together with the reduction in hospital expenses for previously used methods of treating this widespread condition have impressed them profoundly. They recommend careful use of sulfanilamide in clinics where large numbers of gonorrhea patients can be closely watched so that accurate evaluation of the treatment can be made.

*Science News Letter, June 5, 1937*

## PHYSICS

### Brandy Aged in Six Days By Electrical Method

**A** PROCESS by which brandy can be aged in six days instead of months is reported by government chemists to the American Chemical Society. A small electric current and the use of electrified atoms of silver make possible "a flavor of rather smooth, delicate character," says the announcement.

Raw apple brandy and fortified wines were used in the experiments which were carried out at the Geneva, N. Y., experiment station of the U. S. Department of Agriculture. The chemical analysis of the results was done in Washington. E. Arthur Beavens, Harry E. Goresline and E. K. Nelson were the chemist team which did the work.

So efficient is the system of letting the liquor flow slowly between two silver electrodes and making the liquor conduct a small electric current that it will even give raw alcohol mixed half and

half with water a vanillin-like aroma and remove most of the raw flavor.

Economic basis of the work is the need for a way to shorten the aging period which now means holding large quantities of liquor in storage with the accompanying stagnation of financial investments and loss due to leakage and evaporation.

Blindfold tests with professional brandy tasters led them to choose the treated over the untreated brandy. Samples were also submitted to people who had never tasted brandy and likewise led them to choose the treated brandy as more pleasing and mellow.

*Science News Letter, June 5, 1937*

## ASTRONOMY

### Famous Comet Now Showing Variations in Brightness

**D**ISPLAYING large and rapid fluctuations in brightness, Comet Schwassman-Wachmann has been located on photographic plates taken by Prof. G. Van Biesbroeck with the 24-inch reflecting telescope of Yerkes Observatory, Williams Bay, Wis.

After being found on a plate taken May 6, the Yerkes astronomers traced it back to as early as Jan. 18, when it was 17th magnitude, which is very faint. On May 15 it was 13.5 magnitude and only two days later it was a whole magnitude fainter.

Never is this comet seen with the unaided eye. It is also noted for the fact that it remains in telescopic view of the earth throughout circumnavigation of the sun.

Known technically as Comet 1925 II, it is noted for such fluctuations in brightness as have just been reported by Dr. Otto Struve, director of Yerkes Observatory. The variations in brightness are remarkable in a comet so far from the sun. It is seven times as far from the sun as the earth and spends its time circling the sun about a half billion miles away, traveling between the orbits of Jupiter and Saturn. It is probably the first comet that is observable all the way round its orbit.

The German team of astronomers, Schwassman-Wachmann, have discovered many comets and as a result there is more than one Schwassmann-Wachmann comet. This particular comet was first discovered by them in 1927, but it has been given the designation 1925 II. This is because it was nearest the sun in 1925 and it was the second comet of that year to pass perihelion.

*Science News Letter, June 5, 1937*

## OCEANOGRAPHY

### Screen Star's Yacht Becomes Science Laboratory

**T**HE SEAGOING yacht *Serena*, formerly the property of Lewis Stone, noted screen actor, has been purchased for the Scripps Institution of Oceanography by Robert Scripps, son and nephew of its two founders and head of the Scripps-Howard Newspaper Alliance. The vessel will replace the Institution's former floating laboratory, the yacht *Scripps*, burned on Nov. 13, 1936, after a mysterious explosion.

The new yacht is larger and faster than the *Scripps*, being 106 feet long as against 65 feet for the older boat. She is able to navigate under either power or sail.

Dr. H. Sverdrup, director of the Scripps Institution, is having her overhauled for her new work. Part of the luxurious staterooms are being ripped out, to be replaced with laboratory rooms. Deep sea drags and a 120,000-foot cable reel for work at great depths will be installed. Fuel tanks are being enlarged to increase the cruising radius.

The new vessel will be ready for her first scientific cruise early this summer.

*Science News Letter, June 5, 1937*

## OCEANOGRAPHY

### Polar Over-Winterers To Study Mystery Current

**R**USSIA'S four Polar over-winterers will endeavor to solve, among other scientific problems, a riddle first propounded by a Norwegian forerunner, the great Fritjof Nansen.

Forty-four years ago, while sailing poleward in his stout ship, the *Fram*, Nansen discovered a powerful sea current flowing from the Atlantic into the Arctic, at a depth of from 700 to 2300 feet. It was warmer and saltier than Arctic ocean water.

The four scientists on the floe will check the extent to which this current penetrates into the central part of the Arctic Ocean, and will also ascertain more accurately its depth and dimensions, states Tass.

Another unknown quantity in the question-book of the Arctic is the depth of the ocean's basin at the pole. It has been commonly asserted that it is 12,000 to 16,000 feet to the bottom, but nobody really knows. The *Four on the Floe* will try to get accurate soundings.

*Science News Letter, June 5, 1937*

ETHNOLOGY

# Counting Riches in Wives

**A Husband in Yoruba-Land Is Rated as Poor Indeed If He Has Only a Niggardly Seventy-Five in the Harem**

By DR. FRANK THONE

**S**UPPOSE it were discovered that the mayor of your city had 75 wives!

Some scandal, eh? You can imagine how the tongues would wag.

But suppose, on listening to said wagging of tongues, you found that he was not being criticized for having 74 too many wives, but rather for having 150 too few. Suppose you heard your neighbors saying, "That mayor of ours is a mere piker. Imagine—only 75 wives! Why, the mayor of Nexttown has a harem of 200. It's a disgrace to our city, that's what it is!" And the women even more outspoken in their criticism than the men.

An upside-down country, a Looking-Glass land? Not at all. A situation not essentially different from that obtains in a real earthly country, a spot on the map of our own earth. It exists right now. In Yoruba-land a man's importance is rated by the number of wives he has, and a really important personage with a mere beggarly 75 women in his household is counted pretty much of a piker.

Where is Yoruba-land? Turn to your map of Africa, to the big angle on the west coast, where the shoreline ceases its northward trend and swings toward the west. Out in the blue ocean you will find the label, "Bight of Benin." Inland from there, holding a part of the coast and stretching quite a distance into the hinterland, live the Yoruba tribes. They are of more or less the same racial stock, speaking languages that differ but which for the most part plainly spring from an original basic speech. The land of the Yorubas is colored with the far-flung British red, but a considerable degree of self-government and English tolerance of native custom prevails.

## Great "Parish"

From a four-year sojourn in Yorubaland recently returned an American missionary-scientist, Rev. Edward Ward, who is now continuing his studies at the Catholic University of America, in Washington, D. C. In his African "parish" of something like 10,000 square miles he had ample opportunity, as he

travelled around, to observe the ways of the people. They were friendly, and he spoke their language fairly well, and kept his eyes and ears open without asking too many direct questions. So he learned quite a lot.

The 75-wife "piker" was a real person; still is, for he is still living. He may by now have improved his status by getting some more wives, but at that time he was popularly rated as not amounting to as much as one of his subordinate chiefs, because the chief had a full 200 wives to check off against his sovereign's miserly 75.

## Comment on Number

At times of great feasts, when all the kings and chiefs come together, attended by all their wives, "I noticed," Father Ward states, "that as the commoners closed in to see the sight they were always careful to note the number of wives each chief had. And that fact formed the nucleus of their conversation for the rest of the evening."

Why this great stress on the Importance of Being Married? Father Ward found a number of reasons: desire for more children, usefulness of extra wives as extra income-producers, etc., but by far the most important was something we encounter in a very slightly altered form in our more "civilized" society—the desire of a rich man to show off his success. With us a political "big shot," a leading merchant, a rich landowner, will build a big house and fill it with fine furniture, will drive a costly automobile, will load his wife with sables and diamonds. He will even brag about his bank balance and the size of his income tax.

The Yoruba rich man finds his style rather cramped, when it comes to showing off. There is no use acquiring land: you can't buy it, only get leasehold from the king or chief—and that's so cheap that it is of no use for purposes of ostentation. Nobody cares about fine houses; even big chiefs live in the simplest type of thatched huts. And furnishings are almost unknown.

Says Father Ward: "Old Sashere of Ondo, one of the five big chiefs of the town, was reputed to have bought about



**WEDDING PARTY**

*In spite of almost unbearable heat, the guests are all dressed in unaccustomed garments which they will discard hurriedly as soon as they get home. Father Ward is in white soutane, seated beside the young bride.*





#### YORUBA KING

*The Abodi of Ikoyi is here wearing crown and regal garments and holds his staff of office. He rules over approximately 50,000 people and has a harem of more than one hundred wives aged from 15 to 70.*

sixty wives during his time. Yet once when I went to salute him, he had not a chair to offer me. And he was one of the plutocrats of the land."

There is just one thing in Yorubaland that is really expensive—a wife. There is a standard minimum dowry fee, equivalent to \$62.50 in American money, that must be paid in good round coin of His Britannic Majesty to the bride's parents before the hopeful groom may lead her home. This dowry used to be paid in cowrie shells, before the white man came. But your native, who is nobody's fool when it comes to business, demands cash nowadays.

There are "marked-down" wives, like widows and women with illegitimate children, who can be acquired for as little as \$37.50, but these matrimonial bargains are really not much in demand. And the price of an especially desirable, fully "eligible" bride may range well above the standard \$62.50.

Besides the outright dowry-price, there have to be additional expenditures: gifts of palm wine and other dainties to the bride's parents, provisions for the wedding feast, a present for the bride her-

self. One very much married chief told Father Ward that on the average his weddings had cost him \$100 apiece.

So the Yoruba potentate or magnate, finding a good wife not only a man's chief treasure but about the only possible one, proceeds to stock up with just as many such treasures as he can dig up the cash for. There is even a class of *nouveau riche* in Yorubaland, who made their pile in the relatively new business of raising cocoa; they go in for large-scale domesticity in a very big way.

Here is a leaf from the Yoruba Social Register, numerical ratings being numbers of wives: "Alake of Abeokuta 400, Alafin of Oyo 250, Oba of Ilesha 250, Oni of Ife 200, Lisa of Ondo 200, Awujale of Ijebu 150, His Majesty the King of Oshogbo—only 75!"

Wives being so valuable, they are naturally inheritable property; if a man dies, his numerous sons divide his numerous wives between them. Father Ward tells of one lad who served him, who backslid from Christianity very promptly when he inherited his father's two wives at the mature age of fifteen! The tale is also told of a chief, interested in becoming a Christian but puzzled as to what to do with all his wives, offering a startled missionary a fair half of them! (Said missionary, it should be carefully stated, was *not* Father Ward.)

#### General Harmony

But how do so many wives in one house get on together? As a rule, pretty well, says the American missionary-scientist. Each wife has her own room in the harem, where she is sole mistress, where she lives with her children, where she keeps her private property—mats, calabashes, corn, fish, and the like—and with which no one dare tamper without her express permission. Usually the meals are prepared at a common fire in the courtyard, each wife attending to her own pot.

These daily household get-togethers are of course the great opportunities to exchange news and gossip—not neglecting, of course, the newest, spiciest scandal. "It is hard to get a word in edgewise when these women get together," remarks Father Ward. "They are all born orators."

Of course such social intercourse is not always idyllic. Sometimes a row breaks out—as often as not over what one woman's little boy has done to another woman's little boy. "The wives take sides. The group breaks up into pairs and each wife tries to gain the

upper hand by the pitch and eloquence of her voice and by dramatic and masterly gestures. But it is only a battle of words. Never a blow is struck."

And thereby hangs another tale of a much-married pagan chief who had come to think favorably of Christianity—all but the monogamy requirement. "I don't think you'll really understand how it is, Father," he said to the missionary, "because you aren't married at all. But it's this way. Women will talk, and if they talk they argue. And if I have a lot of 'em they'll argue with each other and let *me* alone!"

#### Not Disturbed

Father Ward gives confirmation to the spirit of this yarn, at least; he observed more than one roaring family row going full blast, while the one husband of all these wives sat placidly smoking his pipe, as though he were alone in the midst of primeval silence.

Of course, these huge harems of a hundred wives and up are only for chiefs and rich men. But lesser citizens have their modest domestic arrangements, too. The town clerk of the city of Ondo (pop. 30,000) where Father Ward had his headquarters was the proud husband of an even dozen. Artizans and moderately well-to-do farmers, who could afford multiple marriage, had from two to five or six.

In these middle-class households the extra wives are business assets. They do the lighter jobs around the farm, all the burden bearing (carrying anything is beneath the dignity of a male), and they do all the buying and selling. There are no businessmen in Yorubaland, only businesswomen. The husband gives his wives a substantial bit of money as initial trading capital, the women go to market with their wares, and when they return they turn over a reasonable share of the profits to their husband-capitalist. The duodecimally-married town clerk aforementioned told Father Ward that his wives kept him provided with all his food; he was never a penny out for "chop."

However, even in Yorubaland, this business of wives by the dozen or hundred is the exception. It has to be. British census figures show that the excess of females over males in the total population is only about six in the hundred. So only a few men, relatively speaking, have more than a wife apiece. Monogamy is the rule, multiple-wived households the conspicuous exception.

One thing that makes for monogamy,



and also for late marriage among the men, is the high cost of wives. It takes a poor man a long time to save up the necessary \$62.50. For the same reason, he looks his prospective bride over much more carefully than a richer man might, who could afford any number of wives. Where so much money is involved, marriage is a very serious business indeed. What we would call "trial marriage" is a very common thing among the Yoruba—often insisted upon by the bride's parents as well as by the groom.

### Usually Happy

Yet marriage among the Yoruba is by no means the sordid thing that might be imagined, from all this talk of cash involvements. Husbands and wives usually get along quietly and contentedly, Father Ward reports, and he saw some marriages that were almost idyllic, even after a number of years.

The matrimonial situation in Yorubaland has of course been complicated considerably by the coming of foreigners. Many converts have been made by missionaries of three faiths, Catholic, Protestant, and Mohammedan. Each has its own marriage rules, which often run counter to those of the original native religion. Even Mohammedanism, which permits a man the same number of wives that the Prophet had—four—would cramp the style of a really ambitious native chief. And now British civil law permits divorce—which many Yoruba matrons are finding to their advantage.

And the worst of it is, there isn't any refund on your \$62.50. Even in Yorubaland, a man simply can't find any really good securities to invest his money in any more!

*Science News Letter, June 5, 1937*

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The National Bureau of Standards has found a way of depositing iron from an electrolytic bath five times as fast as the usual rate.

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**TRANSPARENT**

*This young lady is photographed through nine and one-half inches of water-clear plastic made in the United States.*

PHYSICS

## Accurate Cheap Lenses Made From Transparent Plastic

**Eye Glass Lenses May Be Made 1,500 an Hour Without Grinding When Water-Clear Plastic is Used**

**S**PECTACLE lenses produced at a rate of 1,500 an hour instead of being ground slowly and laboriously by hand, are only one possibility of the new transparent resin molded lenses now being exhibited in America by two British inventors. Eye glasses for all who need them at a cost measurable in cents instead of tens or twenties of dollars may some day be the result of thus achieving a long-held dream of molding optical lenses instead of fashioning them tediously by hand.

Good quality lenses on low price cameras and binoculars are another possibility already realized on a small scale. The entire important movement of copying the world's scientific and historic literature on microfilm and making it cheaply available to anyone anywhere, is also closely bound up with securing an

inexpensive optical viewing device which one could carry in the pocket or keep in a desk drawer.

The molding of lenses has intrigued industry, governments, scientists and engineers for years. Glass, with its high melting point and other characteristic properties has been abandoned as a likely molding material for any but the cheapest and poorest kind of optical equipment of 10-cent store quality. But ever since the discovery of the chemical plastic materials the dream of molding lenses has seemed nearer. The color and non-transparency of the plastics prior to a year ago was a hampering aspect. Lack of a technique for molding with accuracy needed for optical work was another.

In America, in England and in other countries plastics of remarkable water-clear transparency have been achieved.

Now from England come lenses of a transparent plastic known abroad as Perspex. And from it are molded lenses accurate enough for almost any use except in the finest of optical instruments. Particularly to the point, the accuracy of the lenses is more than sufficient for spectacles.

The transparent resins have one natural disadvantage compared with glass for the production of lenses. They scratch relatively easily and probably have nowhere near the lasting qualities of glass. But as one skeptical scientist at the National Bureau of Standards in Washington points out this shorter life can be tolerated if the cost is very much less. If 100 molded lenses cost only as much as a single one of glass made by grinding, the economy may be balanced against the shorter life. For military optical instruments—binoculars, periscopes and such—the life of the device is short at the best so that the British army, in particular, is interested in the new development.

### Clearness and Molding

Thus the molded lenses rest on two things: the new transparent plastics and the new molding process for fashioning them accurately into a lens surface. It is the second factor which is credited to the two co-inventors from Great Britain: Arthur W. Kingston, research engineer, and Peter Koch de Gooreynd, Anglo-Belgian industrialist. In recent months of the five-year development program Dr. W. E. Williams of Wheatstone Laboratory, King's College, University of London, has acted as consultant.

The accuracy of molding the new plastic lenses is reported to be 1/500,000th of an inch, by independent and reputable measurement. This is sufficient for any but the finest and most expensive of optical instruments, state scientists. In fact this is much better than the accuracy required for spectacle lenses although this should not be considered too impressive since the human eye is

notoriously a poor optical instrument of itself. Spectacle lenses require an accuracy of 1/50,000th of an inch.

### Free Glasses

One use suggested for the new molded lenses in the spectacle field is to supply all school children with free glasses if they need them. Among adults too it is estimated that two people out of 10 wear glasses but that seven out of ten need them. Where the high (but justified) cost of spectacle lenses is a factor, the advent of low cost glasses should materially aid this problem of better vision for the mass of the population. The high cost of present-day spectacles lies mostly in the often multiple grinding and polishing of the glass surfaces to fit individual prescriptions.

Since the new molding process will form both spherical and non-spherical surfaces the convex and concave sides of the resin lenses could be molded separately and joined. Thus 10 molds each for the front and back of a lens would yield 100 combinations of lenses. A hundred such molds would provide 10,000 possible combinations and only 500 different mold forms, with their 250,000 possible combinations, would

probably provide for almost every possible individual need of the human eye which might be encountered.

Beside the factor of the "life" of the molded lenses—how soon they would lose their shape, scratch or discolor with actual service—scientists are wondering how the inventors hope to overcome the problem of correcting for what is known as chromatic aberration. This technical phrase means the inability of a lens to focus, at a single point, all the different colors of the light ray spectrum. Glass lenses too have this trouble which is overcome by a combination of two or more different kinds of glass cemented together to compensate for one another.

### Considered Possible

While no detailed data are yet available on the way the inventors hope to solve this problem it is understood that by combinations of different transparent resins it might be accomplished. If Kingston and Koch de Gooreynd can achieve this feat they truly will have solved a problem which will allow them to enter into the superior instrument field.

Chromatic aberration is not a barrier, however, to the use of the molded lenses in spectacles because the human eye has so much chromatic aberration anyway that the added aberration produced by a simple spectacle lens is too small for the eye to detect.

While the name may be unknown to



### CHEAP BUT CLEAR

Peter Koch de Gooreynd, Anglo-Belgian inventor, shows how a periscope with binoculars containing transparent resin lenses may be used to watch distant scenes above the heads of a crowd.

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the American layman, F. Twyman, managing director of the famous instrument house of Adam Hilger, Ltd., is widely known to scientists everywhere as an authority on optical systems and lenses. His report on the new molded lenses, therefore, is especially significant. Said Mr. Twyman after a detailed examination of the lenses:

"The lenses submitted to me are satisfactory for the cheap class of work for which they are intended. Further, I am of the opinion as a result of the tests made, that with care in preparation of the material and moulding, lenses could be produced of a quality good enough for such work as good camera lenses, binocular lenses and so forth.

#### Two Disadvantages

"The only defects of the material for such work as mentioned above are the obvious ones that it is not so hard as glass, and is thus more easily scratched and that it becomes plastic at temperatures much more normal, being easily moulded at 100 degrees centigrade."

Thus if one dipped spectacles with molded lenses in boiling water they would melt and run away.

The chemical name of the British resin employed in the lenses is methyl-methacrylate. There are equivalent resins known by different trade names, produced by the du Pont Company in America, and other countries. The molding process is controlled by the Combined Optical Industries, Ltd.

*Science News Letter, June 5, 1937*

Preliminary reports from the recent census in Soviet Russia give a population of 176,000,000.

A report from Turkestan says that a new region containing radioactive ores has been found.

#### CHEMISTRY-AGRICULTURE

## Apathy Toward Pure Science Deplored by Dr. K. T. Compton

### Farm Chemurgic Conference Hears of Efforts to Find New Uses in Industry for the Products of the Farm

SCIENCE has made possible a "new thing under the sun"—the more abundant life generally distributed, without one man's having to make his gains off another man's losses. Research in pure science must receive public support if this happy state of things is to be stabilized and extended.

These were the main theses of Dr. Karl T. Compton, president of Massachusetts Institute of Technology, in an address at the Third Dearborn Conference of Agriculture, Industry and Science.

The speaker took Government to task for spending so much time and money on regulatory and restrictive efforts in the field of existing technology and knowledge, and giving so little support, relatively speaking, to much-needed research for new. He said:

"I have frequently felt discouraged by the apathy, and sometimes almost antagonism which has appeared to exist in high places in respect to this scientific program. To be sure, I realize full well that the distress of unemployment must be relieved, that wealth must be properly regulated and distributed, and that curtailment of production of crops, oil and other commodities may need to be regulated in the public interest.

"My dissatisfaction is not because these things are being done, but because the other things, so pregnant with possibili-

ties for the future, are neglected to the extent of only half of one per cent. of the budget of our federal government, and probably not more than this percentage of the active interest of our national leaders.

"But doubtless I am too impatient and critical. After all it generally takes a long time and much mental effort to reach conclusions which, after reaching, seem so obvious that we wonder why there was ever any hesitation. So I believe it will be in this case, for I am perfectly confident that in time the public will really put faith in science as the intelligent basis of adjustment and control of the environment in which we live."

#### Taught Negroes

White folks invent special names for making new uses of things grown on the farm. Negroes down South have for quite a long while now been doing something of that kind, though without any special name. One of their own race, Prof. George W. Carver, of Tuskegee Institute, most widely-known of American Negroes in scientific work, developed most of the methods in his own laboratory and then showed his people how to use them.

Prof. Carver told this dramatic story: "Forty years ago, when I came to Tuskegee," he said, "I was met with innumerable facts such as these: terrific losses from soil erosion, soil practically a pile of sand and clay making a yield far below cost of production, poor preparation of land, no diversification of crops, practically no livestock, poor gardens if any at all, food for the family as a rule meager, of the worst type, and poorly prepared."

Against all these evils that beset the Negro farmers, Prof. Carver successfully pitted his hard-won scientific knowledge, only to find himself presently confronted with the same problem that has plagued agriculture everywhere: greatly increased production that outran the existing possibilities of consumption.

So Prof. Carver addressed himself to the problem of finding new uses for

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farm produce—principally on the farm itself. It was a "live-at-home" program. Some of the uses were for non-food purposes, but conditions were still such that Prof. Carver's chemical ability could find plenty of profitable exercise in showing Negroes how to make better use of food.

Demonstrations at fairs and widely distributed pamphlets told of 44 ways to prepare meat, 31 ways to cook sweet potatoes, 115 ways to serve tomatoes, 105 ways to make peanuts palatable, 43 ways to save the wild plum crop. Prof. Carver has by no means confined his researches to home-manufactured products of Southern origin. He has turned his hand to industrial outlets in a wide scope, all the way from peanut-shell wallpaper to cotton-reinforced asphalt paving blocks.

### Chemurgy in The West

Chemurgy, the chemical-industrial utilization of farm products, is no new thing under Utah's sun. Dr. John A. Widsøe, an important officer in the Latter Day Saints' Church, told the meeting. The first migrants who settled the intermountain country, in the days of Brigham Young, made from farm products the various articles used in a civilized country, and oil, paper, and sugar mills and the like were under way before the railroad entered the Great Basin.

Dr. Widsøe outlined five lines along which chemical-industrial enterprise might be of particular benefit in the West; factory conversion of farm products like sugar beets and vegetables raised for canning; discovery of new uses for old and standard crops; introduction of crops as yet not raised under irrigation; scientific utilization of farm wastes; profitable disposal of surplus crops.

*Science News Letter, June 5, 1937*

An archaeologist has discovered sites of the kilns where China's rare and famous Yueh pottery ware was made in the tenth century A. D.

Clothes moths probably do more damage in a year than any of the agricultural pests, says one entomologist.

## RADIO

June 8, 4:15 p. m., E.S.T.  
SCIENCE DIGS A MINE—Charles F. Jackson of the U. S. Bureau of Mines.

June 15, 4:15 p. m., E.S.T.  
FISHING IN ALASKA—Frank T. Bell, Commissioner of Fisheries.

In the Science Service series of radio discussions led by Watson Davis, Director, over the Columbia Broadcasting System.



### The Coming of Clover

CLOVER is so completely and integrally a part of American agriculture that it is nearly impossible for us to imagine a time when it was not. Yet the first colonists did not cultivate clover, and it was only a little while before the outbreak of the Revolutionary War that clover cultivation really began to be generally adopted.

Just when red and white clover first appeared in America is, and probably always will be, a rather uncertain date. A U. S. Department of Agriculture historian has found reference to its presence on Long Island as early as 1679. But these earliest records seem to be of chance-sown plants naturalized and run wild, rather than of deliberately cultivated clover.

One definitely named and located clover cultivator is offered for record by one of his own descendants. Mrs. Mary Vaux Walcott, a notable botanical artist of Washington, D. C., states that an ancestor of hers, one James Vaux, planted clover on "Fatlands," his farm on the Schuylkill river opposite Valley Forge, well before the Revolutionary War began.

As James Vaux pioneered in the bringing of one valuable legume from Europe, so his descendant took the lead in the introduction of another valuable plant of the same family, alfalfa, from the West. Mrs. Walcott claims the honor of having been the first farmer to grow alfalfa in the state of Pennsylvania.

It seems more than a little odd, at first glance, that English and other European settlers in the new land should have been so remiss about bringing in what we have come to regard as an absolutely essential element in sound crop rotation.

On second thought, however, it may not be so strange after all. The farmers in the northern and middle states were

at first pretty much on a subsistence basis, like the later pioneers of the Ohio valley and the West generally. They raised crops mainly for their own consumption, and produced little for export. It was easier to work virgin soil until it would yield no more, and then move on to other rich free land awaiting the clearing ax and the breaking plow.

In the South, where the big plantation system and the institution of chattel slavery made good profits in cash crops for export, like tobacco and indigo, and later cotton, the same practice of working land to exhaustion and then abandoning it was even more intensively and destructively followed.

It was only when the menace of spent and eroding lands began to worry folk near the seaboard that the soil-building clovers began to get proper attention. And it is perhaps significant that the most earnest early efforts toward a more scientific agriculture were put forth in the neighborhood of Philadelphia, first great center of American science.

*Science News Letter, June 5, 1937*

#### GENERAL SCIENCE

### Eiffel Tower Is Lighted To Honor Paris Exposition

See Front Cover

AS in Chicago during the Century of Progress Exposition, modern illuminating art is playing its part in Paris, adding to the city's customary gayety in honor of the occasion of the Exposition Internationale. The festive illumination of the famous Eiffel Tower is shown on the front cover.

At the Paris exposition which will be held from now until November, prominence will be given to art industries. The first group of exhibits contains an initial section on scientific discoveries.

*Science News Letter, June 5, 1937*

## PSYCHOLOGY OF SEX

by HAVELOCK ELLIS

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# •First Glances at New Books

## Psychology—Education

**SUPERIOR CHILDREN, THEIR PHYSIOLOGICAL, PSYCHOLOGICAL AND SOCIAL DEVELOPMENT**—John Edward Bentley—*Norton*, 331 p., \$3. Society is neglecting its superior children, failing to give them education suited to their abilities. To emphasize this situation, Dr. Bentley has surveyed the available scientific data on bright children and their educational needs. Continued neglect of the valuable asset these children represent will be weakening to social progress, the book indicates.

*Science News Letter, June 5, 1937*

## Physiology—Psychology

**READING, WRITING AND SPEECH PROBLEMS IN CHILDREN, A PRESENTATION OF CERTAIN TYPES OF DISORDERS IN THE DEVELOPMENT OF THE LANGUAGE FACULTY**—Samuel Torrey Orton—*Norton*, 216 p., \$2. Stressing the physiological basis of language disorders, Dr. Orton discusses origin and treatment of a number of these conditions. Many language disorders, he concludes, may arise from "a deviation in the process of establishing unilateral brain superiority in individual areas."

*Science News Letter, June 5, 1937*

## Ethnology

**MARRIAGE AMONG THE YORUBA**—Edward Ward—*Cath. Univ. of America*, 55 p., 57c. See page 362.

*Science News Letter, June 5, 1937*

## Drawing

**FREEHAND AND PERSPECTIVE DRAWING: A PRACTICAL TREATISE OF THE PRINCIPLES OF ARTISTIC PERCEPTION AND THE ART OF CORRECT GRAPHIC DELINEATION**—Herbert E. Everett and William H. Lawrence—*American Technical Society*, 72 p., illus., \$1.50.

*Science News Letter, June 5, 1937*

## Education

**THE COLLEGE OF THE FUTURE**—Mowat G. Fraser—*Columbia Univ.*, 529 p., \$3.75. A thorough and documented appraisal of fundamental plans and trends in American higher education.

*Science News Letter, June 5, 1937*

## Anthropology

**NAVEN, A SURVEY OF THE PROBLEMS SUGGESTED BY A COMPOSITE PICTURE OF THE CULTURE OF A NEW GUINEA TRIBE DRAWN FROM THREE POINTS OF VIEW**—Gregory Bateson—*Cambridge (Macmillan)*, 286 p., plates, \$5. A comprehensive approach to study of primitive cul-

ture. The author reasons that, in addition to explaining what a tribe does and why, it is equally important to take account of the emotional tone. The Naven ceremony, in which men of a head-hunting tribe caricature women, is the subject thus psychologically and ethnologically analyzed.

*Science News Letter, June 5, 1937*

## Poetry

**THE RYE IS THE SEA**—Paul Southworth Bliss—*Cirrus Co., Bismarck, N. D.*, 62 p., illus., \$2. A new book of nature verse by a writer whose work has several times been noticed on this page. Mr. Bliss also planned the publication, and has produced something quite out of the ordinary: the book is printed on brown wrapping-paper and bound in grain-sacking. The rubber-block illustrations, again by Harold Matthews, are excellencies in both composition and technique.

*Science News Letter, June 5, 1937*

## Natural History

**1001 OUTDOOR QUESTIONS**—Iroquois Dahl—*Funk & Wagnalls*, 406 p., \$2. How long does a bird live? Do the biggest conifers bear the biggest cones? What is meant by an animal "sulling"? How should a porcupine be cooked? These and 997 other questions, including many that would seem quite unreasonable to ask anybody, are all concisely answered here. And he adds a spice of humor with a number of highly improbable yarns—with illustrations.

*Science News Letter, June 5, 1937*

## Physics

**DRAKE'S CYCLOPEDIA OF RADIO AND ELECTRONS** (8th ed.)—Harold P. Manly and L. O. Gorder—*Drake*, about 1000 p., \$5. A popular reference book revised to bring it into the most up-to-date perspective in relation to the fast-moving electronic art.

*Science News Letter, June 5, 1937*

## Exploration

**THE LAND THAT TIME FORGOT: ADVENTURES AND DISCOVERIES IN NEW GUINEA**—Michael Leahy and Maurice Crain—*Funk & Wagnalls*, 274 p., plates, \$3. Gold hunting led these explorers into the interior of New Guinea, where they reached unmapped highland country, and found a large population of natives in a vast, fertile plateau. The adventures, many of them exciting, are told in lively style.

*Science News Letter, June 5, 1937*

## Physics—Astronomy—Fiction

**ZERO TO EIGHTY: BEING MY LIFETIME DOINGS, REFLECTIONS, AND INVENTIONS ALSO MY JOURNEY AROUND THE MOON**—Akkad Pseudoman (E. F. Northrup)—*Scientific Pub. Co.*, 283 p., illus., \$3. Verneque scientific fiction by an eminent physicist and engineer. The hero of the story creates a means of escaping from the earth's gravity, circles the moon and returns to the earth alive with records. The author believes there are vast possibilities latent in the production of high linear velocities by the use of electrically produced traveling waves of magnetic force.

*Science News Letter, June 5, 1937*

## Psychiatry

**THE NEUROTIC PERSONALITY OF OUR TIME**—Karen Horney—*Norton*, 299 p., \$3. The author, a physician, has written this book for the layman, in the hope that neurotic individuals and those who think themselves neurotic may find in it material of interest and value. As she points out, the neurotic will not be able to help himself merely by reading the book, but normal persons who think themselves neurotic will find helpful the carefully explained distinction between neurotic and non-neurotic behavior.

*Science News Letter, June 5, 1937*

## Autobiography—Psychiatry

**RECOLLECTIONS OF RICHARD DEWEY, PIONEER IN AMERICAN PSYCHIATRY**—Ethel L. Dewey, editor—*Univ. of Chicago*, 173 p., illus., \$2. During the life of Dr. Richard Dewey from 1845, when America was a frontier country, to 1933, great changes were made in the treatment of the mentally ill. Dr. Dewey was head of the State Hospital for Insane at Kankakee, Illinois, for some fourteen years, and instituted many of these changes.

*Science News Letter, June 5, 1937*

## Neurology

**G. CARL HUBER MEMORIAL VOLUME OF THE JOURNAL OF COMPARATIVE NEUROLOGY**—*Wistar Institute*, 711 p., illus., \$7.50. The colleagues of a noted neurologist gather to pay honor to his memory with a series of biographical statements and seven original publications in his special field. The scientific papers are by the late Dr. Huber himself, J. K. Weston, A. A. Pearson, M. W. Young, R. T. Woodburne, J. W. Barnard, and Tryphena Humphrey.

*Science News Letter, June 5, 1937*